



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,359	03/09/2004	Stephen Boyer	909A.0156.U1(US)	4348
29683	7590	04/12/2007	EXAMINER	
HARRINGTON & SMITH, PC			SKOWRONEK, KARLHEINZ R	
4 RESEARCH DRIVE			ART UNIT	PAPER NUMBER
SHELTON, CT 06484-6212			1631	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/12/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/797,359	BOYER ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Karlheinz R. Skowronek	1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 12 January 2007.  
 2a) This action is FINAL. 2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1-46 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-46 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Status***

Claims 1-46 are pending.

Claims 1-46 are being examined.

### ***Information Disclosure Statement***

The information disclosure statement filed 12 January 2007 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the references cited lack any identifiable publishing information such as a publisher/ place of publishing, date of publishing, or volume information. The same references were also not entered previously for the same reason. Furthermore, it is noted as in 37 CFR 1.97, an IDS submitted after the first action on the merits but before a final action shall be considered if accompanied by a written statement as under paragraph (e) of 37CFR1.97 or payment of a fee set forth in 37 CFR 1.17(p). The IDS filed 12 January 2007 failed to satisfy either condition. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Applicants' arguments to the objections/rejections stated in the previous office action have been fully considered and are persuasive in part. Rejections not reiterated hereby withdrawn. The following rejections constitute the complete set presently being applied to the instant application.

***Specification***

Applicants response to the objection to the specification is noted, as provide in the replacement paragraphs to the specification to correct trademarks, filed 12 January 2007.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 7, 9-1 5,17, 19, 22, 25, 27-33, 35, 37 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information).

Claim 1 is directed to a method of processing a document, comprising: partitioning document text and assigning semantic meaning to words, where assigning comprises applying a plurality of regular expressions, rules and a plurality of dictionaries to recognize chemical name fragments; recognizing any substructures present in the chemical name fragments; and determining structural connectivity information of the chemical name fragments and recognized substructures; extracting identifying information and storing the identifying information with determined structural connectivity information in a searchable index. Similarly, claim 19 is drawn to a system and claim 37 is drawn to a computer program product automating the method of claim 1 and its dependents.

Garfield teaches a method (cl. 1), a program (cl. 37) (p.467, para. 1, "computer coding") and system (cl. 19)(p. 467, para 1-2, "Univac") of processing documents, comprising: partitioning document text and assigning semantic meaning to words (p. 454, Objectives of linguistic analysis, sent. 4 and p. 490, 3rd para., sent. 1), where assigning comprises applying a plurality of regular expressions (p. 469, 2nd-3rd para.), rules and a plurality of dictionaries (p. 470-472, tables 1-3; p. 478; 6th para.) to recognize chemical name fragments; recognizing any substructures present in the chemical name fragments (p. 490, 1" para, sent. 1); and determining structural connectivity information of the chemical name fragments and recognized substructures (p. 479, table V) and storing the determined structural connectivity information in a searchable index (p. 453, 4th para., sent. 1-2). With respect to the amended additional limitations of extracting identifying information and storing extracted identifying

information with chemical structural information, Garfield teaches a reading unit that selectively copies words for indexing and other purposes is seen to read on these limitations (p. 460, lines 1-4).

Regarding claims 4, 22 and 40, Garfield teaches the searching the index by fragment or substructure name and/or connectivity (p. 466, Relationship Between Nomenclature and Searching).

Regarding claims 7, 9,12, 25, 27, and 30, Garfield teaches dictionary used to lookup fragments and substructures, with chemical prefixes and suffixes and common chemical word endings (Table II, p. 471).

Regarding claims 10-11 and 28-29, Garfield teaches a dictionary of stop words (p. 487, 2nd para, 2nd to last sentence).

Regarding claims 13-15 and 31-33, Garfield teaches the application of regular expressions comprised of a plurality of patterns (further comprised of characters numbers and punctuation; c1.14 (p. 487, 2nd para., sent. 5)) in which punctuation characters are maintained or removed (cl.13) (Dictionary match routine, p.486) and where punctuation can be at least one of parenthesis, square bracket, hyphen, colon and semicolon (cl. 15) (p. 487, 2nd para., sent. 5, "paren" and next sentence, "hyphen").

Regarding claims 17 and 35, Garfield teaches characters comprising the string "yl" (p. 487, 2nd para., sent. 2).

#### **Response to arguments**

Applicant argues that Garfield does not anticipate the instantly claimed invention. Applicant argument is not persuasive. Applicant points to the disclosure of Garfield in

which chemical names are entered via punch cards to be converted into chemical formulae. However, the use of punch cards is merely an illustrative proof of concept of Garfield's teaching. On page 459, Garfield introduces the concept of mechanical reading devices, ie optical character recognition, which would "avoid the costly step of manually creating a computer input", i.e. punch cards (Mechanical reading device). The mechanical reading device is then used to copy words (identifying information) from documents for indexing (p. 460, lines 1-4). Applicant continues, stating Garfield fails to extract identifying information from the punch cards or store extracted identifying information in association with anything else in a searchable index. Applicant's statement seems to be incorrect. The physical act of feeding the punch card into a computer clearly reads on extracting identifying information. The punch card contains the information and the punch card reading computer extracts the identifying information from the punch card. The information extracted from the punch card resides in memory or working storage unit. The extracted information is "associated" with the index. The chemical information extracted by Garfield is not isolated; Garfield envisaged that the information is just part of a comprehensive index (p. 454, information requirements... ", para 1). Garfield stores the chemical information (morpheme) in a "morpheme storage area along with its appropriate meaning" reading on storing structural connectivity information in association with identifying information (p. 486, dictionary math routine" lines 2-4).

Applicant argues the instant invention is distinguished over Garfield because Garfield is directed to translating chemical names to formulae whereas the instant

invention is directed to providing a searchable database. Applicants' argument is found non-persuasive. The preamble of claim 1 of the instant invention clearly indicates that the invention is directed to a method of processing a document not to providing a searchable database.

### ***Claim Rejections - 35 USC§103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. The following rejection has been necessitated by amendment.

Claims 2-3, 6, 20-21, 24, 38-39, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-51 3, 1984, Institute for Scientific information), as applied to claims 1, 4, 7, 9-15, 17, 19, 22, 25, 27-33, 35, 37 and 40 above, and further in view of Hull et al (US PAT 6,332,138).

Claims 2-3, 6, 20-21, 24, 38-39 and 42 are drawn to extracting keywords and storing identifying information and keywords in association with structural connectivity in a searchable index and then searching the index using a keyword and a chemical

fragment. With respect to claims 6, 24, and 42, claims include the limitations of searching a text index and a structure index to identify a document.

Garfield does not teach storing keywords and identifying information in association with structural connectivity and then searching an index with a keyword and a fragment name or connectivity.

Hull et al teach extracting keywords and storing identifying information and keywords in association with structural connectivity in a searchable index and then searching the index using a keyword and a chemical fragment. Hull teaches extracting keywords from the document (col. 9, lines 15 -32). Extracted identifying information is stored in association with structural connectivity information in a searchable matrix (index) (col.10, lines 32-52). Hull et al teach the searching of the index by a keyword and a fragment/substructure name or connectivity (col. 16, lines 21-33, and col. 13, lines 40 -67).

With respect to claims 6, 24, and 42, Hull et al teach searching the text index and chemical index of the database with keywords and with a structure (structural connectivity) to identify documents (col. 16, lines 21-33).

It would have been obvious to one skilled in the art to combine the extraction of chemical names, subsequent conversion to chemical structure and storage in an index of Garfield with the method of keyword extraction, storage of identifying information in association with chemical structural connectivity and the searching of the index by a keyword and chemical connectivity or name because Hull et al teach the method allows

researchers to take advantage of past experiments described in the literature to gain an advantage in the development of new drugs (col.12, line 17-20).

One would have been motivated to do so by Hull et al because the method will allow the identification of potential uses for and/or problems with new drugs saving millions of dollars in research and development costs (col. 12, line 15-17).

One would have had a reasonable expectation of success because Hull et al demonstrate the success of the method to identify compounds sharing substructures (col 12, line 22 to col. 15, line 25).

2. The following rejection is reiterated from a previous office actionClaim 18 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-51 3, 1984, Institute for Scientific information), as applied to claims 1, 4, 7, 9-15,17, 19, 22, 25, 27-33, 35, 37 and 40 above, and further in view of Kemp et al. (J. Chem. Inf. Comput. Sci., Vol. 38, p. 544-551, 1998).

Claims 18 and 36 are drawn to tokenizing a document to produce a series of tokens.

Garfield does not teach tokenizing a document to produce a series of tokens.

Kemp et al. teach the tokenization of documents into a sequence of tokens (p. 547, 2nd para, sent. 2).

It would have been obvious to one of ordinary skill in the art to combine the method of Garfield with the tokenization of Kemp et al. because tokenization is a common method in the art to prepare data for automated analysis.

One would have been motivated to do so by Garfield because the method provides greater precision in chemical classification (p. 502, 2nd par., sent 2).

One would have had a reasonable expectation of success because Kemp et al. teach regarding text processing procedures that even simple methods can achieve very high degree of success (Kemp et al., abstract).

#### **Response to arguments**

Applicant argues that the Kemp et al teaching does not utilize non-chemical names and that the chemical names are limited to those that are explicitly in the text. The argument is not persuasive. The object of the Kemp teaching is to add value to the text of patent documents from the point of view of providing improved retrieval and access tags, regardless of whether the information isolated is to be removed to undergo process elsewhere, or by tagging the information *in situ* enabling rapid and accurate focusing on these items (p. 454, col. 1, lines 9-16). The ultimate goal of the Kemp teaching is to provide a consistent text structure to enable consistent information identification and extraction.

3. The following rejection is reiterated from a previous office action. Applicant has not provided any arguments with respect to this rejection.

Claims 5, 16, 23, 34, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield as applied to claims 1, 4, 7, 9-15, 17, 19, 22, 25, 27-33, 35, 37 and 40 above, and further in view of Dittmar et al. (J. Chem. Inf. Comput. Sci., Vol. 23, No. 3, p93-102, 1983).

Claims 5 and 23 are drawn to searching an index by at least one of a fragment or substructure connectivity using a graphical user interface.

Claims 16 and 34 are drawn characters comprising at least one of upper case C, O, R, N, H.

Garfield does not teach searching an index by at least one of a fragment or substructure connectivity using a graphical user interface or characters comprising at least one of upper case C, O, R, N, H.

Dittmar et al. teach searching an index by at least one of a fragment or substructure connectivity (p.99, col. 2, para2, sent. 1) using a graphical user interface (p. 93, col. 1, para. 3, sent. 2).

Dittmar et al. teach or characters comprising at least one of upper case C, O, R, N, H (p. 98, col. 1 par 2, sent. 3; para.3, sent. 1; and p. 99, para 2-3).

It would have been obvious to combine the teaching Garfield with the teach Dittmar et al. because Dittmar et al. teach implementation of a user interface to simplify searching (p. 93, col. 1, para 3, sent. 1).

One would have been motivated to do so because Dittmar et al. teach the simplification and improvement of query framing and search procedures through the use of structure diagrams (p. 93, col. 1, para 3, sent. 1).

One would have had a reasonable expectation of success because Dittmar et al. describe the successful use of a graphical user interface.

4. The following rejection is reiterated from a previous office action. Applicant has not provided any arguments with respect to this rejection.

Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield as applied to claims 1, 4, 7, 9-15, 17, 19, 22, 25, 27-33, 35, 37 and 40 above, and further in view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895, 1993).

Claims 8 and 26 are directed to a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Garfield does not teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary (abstract, sent. 3).

It would have been obvious to combine the teachings of Garfield and Drefahl et al. because SMILES notation provides a compact and computationally amenable way to encode chemical structure information.

One would have been motivated to do so by Garfield because the method provides greater precision in chemical classification (p. 502, 2nd par., sent 2).

One would have had a reasonable expectation of success because Drefahl et al. describe the successful application of a SMILES dictionary structure-based retrieval and searching.

5. The following rejection is reiterated from a previous office action. Applicant has not provided any arguments with respect to this rejection.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-51 3, 1984, Institute for Scientific information), and Shivaratri et al. (Computer, p. 33-44, December 1992).

Claim 43 is directed to a system of computers coupled through a data communications network comprising a unit to parse document text; a unit to recognize substructures in chemical name fragments; a unit to identify structural connectivity in fragments and substructures and store the structural connectivity information in a searchable index.

Garfield teaches a method of parsing text to recognize chemical name fragments and any substructures in the chemical name fragments (p. 490, 1<sup>st</sup> para., sent. 1).

Garfield teaches determination of structural connectivity information of the chemical name and substructures (p. 453, 4<sup>th</sup> para., sent. 1-2).

Garfield does not teach a system of computers coupled through a data communications network.

Shivaratri et al teach a system of computers coupled through a data communication network (p. 33, para 4, sent. 1 ) to generate a distributed computing system.

It would have been obvious to combine the teachings of Garfield with the teachings of Shivaratri et al. because distributing computational loads improves performance of computational tasks.

One would have been motivated by Shivaratri et al. who describe the advantages of distributed computing systems as offering high performance, availability, and extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et al describe the successful implementation of distributed computing systems.

6. The following rejection is reiterated from a previous office action. Applicant has not provided any arguments with respect to this rejection.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information), and Shivaratri et al. (Computer, p. 33-44, December 1992) as applied to claim 43 above, and further in view of Leiter et al. (J. Chem. Doc., Vol. 15, No. 4, p. 238-242, 1965).

Claim 44 is directed to structural information stored in a searchable index, text information stored in a searchable index and searching both the structure and text indices to identify a document related to a chemical compound.

Leiter et al. teach the storage of structural information and text information (reading on keywords) in searchable indices (Fig 2). Leiter et al. teach the searching the indices to identify documents related to a chemical compound (p. 238, col. 2, lines 5-7).

It would have been obvious to combine the teachings of Garfield, Shivaratri et al, and Leiter et al. because the combination of the three references provides the functionality of using the indices to find documents of interest quickly and efficiently.

One would have been motivated by Shivaratri et al. who describe the advantages of distributed computing systems as offering high performance, availability, and extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et al describe the successful implementation of distributed computing systems.

7. The following rejection is reiterated from a previous office action.

Claim 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-51 3, 1984, Institute for Scientific information), and Shivaratri et

al. (Computer, p. 33-44, December 1992) as applied to claim 43 above, and further in view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895, 1993).

Claim 45 is directed to a structure dictionary that is used to determine structural connectivity information.

Claim 46 is directed to a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Garfield teaches a structure dictionary that is used to determine structural connectivity information (Table II, p. 471).

Garfield does not teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary (abstract, sent. 3).

It would have been obvious to combine the teachings of Garfield and Drefahl et al. because SMILES notation provides a compact and computationally amenable way to encode chemical structure information.

One would have been motivated by Shivaratri et al. who describe the advantages of distributed computing systems as offering high performance, availability, and extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et al describe the successful implementation of distributed computing systems.

***Response to Arguments***

Applicant argues that the references teach away from searching database created by the prior art methods using chemical names as keywords because the art discloses identical compounds can different names and thus cannot be keywords. The argument is not found persuasive. Since the reference teach associating chemical names with structures and storage in a database, searching the database using a chemical name keyword will identify a specific compound structure and any synonymous names associated with the structure. For example, Leiter et al describe one and only one entry per compound (p. 241, col 1, para 1, first paragraph).

***Conclusion***

No claim is allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karlheinz R. Skowronek whose telephone number is (571) 272-9047. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karlheinz R. Skowronek/  
KRS

MICHAEL BORIN, PH.D  
PRIMARY EXAMINER

